

REMARKS

Claims 1-23 are presently pending in this application. No claims have been amended, cancelled, or added in this amendment. In the Office Action mailed June 13, 2007, all of the pending claims were rejected. More specifically, the status of the application in light of this Office Action is as follows:

(A) Claims 1-5 and 15-21 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,805,177 to Martin ("Martin"); and

(B) Claims 6, 7-14, 22, and 23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Martin in view of U.S. Patent No. 5,550,853 to Ostler ("Ostler").

As a preliminary matter, the Office Action incorrectly states that claims 1-3, 5-10, 12-18, and 20-22 are rejected under Section 102 as being anticipated by Martin. The substantive portion of the Office Action addressing this particular rejection, however, addresses claims 1-5 and 15-21. Accordingly, the following remarks will address the Section 102 rejection of claims 1-5 and 15-21 in view of Martin. The applicants respectfully request that the Examiner confirm or correct the applicants' understanding with respect to this matter.

A. Response to Section 102 Rejection of Claims 1-5 and 15-21 (Martin)

Claims 1-5 and 15-21 were rejected under 35 U.S.C. § 102(b) as being anticipated by Martin. As set forth in detail below, Martin cannot support a Section 102 rejection of claims 1-5 and 15-21 for at least the reason that this reference fails to disclose or suggest all the claimed features.

1. Independent Claim 1 is Directed to a Laser Including, *Inter Alia*, a Laser Source and a Power Source Arranged in an End-to-End Series Relation Along a Longitudinal Axis, and a Fan for Generating Air Flow Generally Parallel with the Longitudinal Axis

Independent claim 1 is directed to a laser comprising a laser source, a power source for causing the laser source to generate a laser beam, and a fan for generating an air flow. The laser source and the power source each have an exterior surface. The laser source and the power source are arranged in an end-to-end series relation along a

longitudinal axis such that the fan directs the airflow generally parallel with the longitudinal axis to pass first substantially adjacent to the exterior surface of the laser source for cooling the laser source, and then to pass substantially adjacent to the exterior surface of the power source for cooling the power source. Several embodiments of lasers in accordance with claim 1 accordingly have a power source at one end of the laser source such that the power source and laser source are inline with each other along the longitudinal axis.

2. Martin Discloses a Laser Device Having a Side Pumped Laser Medium

Martin discloses a laser device having a side pumped laser medium or crystal. Referring to Figure 1, Martin discloses a diode pumped laser device 10 including a heat sink member 12 having a shelf 14 and an adjacent wall 16. A laser medium or crystal 18 is mounted on the shelf 14 and against the wall 16. The laser medium 18 is generally a rod of material, such as neodymium YAG (yttrium aluminum garnet). The heat sink member 12 is mounted on a thermoelectric cooler member 26, which is in turn thermally attached to a surface 27 of a larger heat sink member 28. The heat sink member 28 includes a plurality of metal fins 30 projecting away from the heat sink member 28. A fan 32 is positioned to below the device 10 to direct cooling air toward the metal fins 30 and the heat sink member 28.

Martin also discloses a pump source section having a pump source or diode array 34 positioned to produce side pumping of the laser medium or crystal 18. The pump source 34 is a single row or array of laser diodes made up of a plurality of adjacent individual diodes mounted on a conductive base member 35. The base member 35 is mounted on a heat sink member 36, which is in turn mounted on another thermoelectric cooler 38. The thermoelectric cooler 38 is mounted to the surface 27 of the heat sink member 28 and spaced apart from the thermoelectric cooler 26 of the laser source section.

3. Claim 1 is Patentable over Martin for at Least the Reason that this Reference Fails to Disclose or Suggest Several Claimed Features

Claim 1 is patentable over Martin under Section 102 because this reference fails to disclose or suggest several claimed features. For example, the laser of claim 1

includes a laser source and a power source arranged in an "end-to-end series relation along a longitudinal axis." Further, claim 1 requires a fan positioned to direct air flow "generally parallel with the longitudinal axis" to pass (a) first substantially adjacent to the exterior surface of the laser source for cooling thereof, and then (b) to pass substantially adjacent to the exterior surface of the power source for subsequent cooling thereof. In contrast to the claimed arrangement, Figure 1 of Martin discloses a cooling arrangement in which the air flow from the fan 32 is flowing perpendicular to the heat sink fins and is blowing simultaneously on both the laser medium section (i.e., heat sink members 12 and 28 and thermoelectric cooler 26) and the pump source section (i.e., heat sink members 36 and 28 and thermoelectric cooler 38). Because Martin fails to disclose or suggest all the claimed features, the Section 102 rejection of claim 1 should be withdrawn.

Claim 1 is further patentable over Martin under Section 103 because a person skilled in the art would not be motivated to modify Martin to come up with the claimed combination of features. The applicants respectfully submit that it would require a significant reconfiguration of Martin's device to position a power source in "end-to-end series relation along a longitudinal axis" with the laser source and the fan. The Office Action has not provided how such a modification could be achieved or that such a modification would provide any benefit to Martin's laser. Furthermore, such a reconfiguration is inapposite to the specific teachings of Martin that disclose a laser medium section and a pump source section constructed separately and independently attached side by side on the heat sink member 28. Accordingly, claim 1 is further patentable over Martin under Section 103.

Claims 2-5 are patentable under Sections 102 and 103 over Martin as depending from allowable base claim 1, and also because of the additional features of these dependent claims.

4. Independent Claim 15 is Directed to a Laser Including, *Inter Alia*, a Laser Source, a Power Source Substantially Adjacent to the Laser Source, and a Cooling Fan at One End of the Power Source

Independent claim 15 is directed to a laser comprising a laser source and a power source substantially adjacent to the laser source. The power source is adapted

for causing the laser source to generate a laser beam. The laser also includes a cooling fan at one end of the power source. The cooling fan is adapted for generating an air flow directed in a generally straight line path with the laser source and the power source for cooling the laser and power sources.

5. Claim 15 is Patentable over Martin for at Least the Reason that this Reference Fails to Disclose or Suggest a Cooling Fan at One End of the Power Source that Generates an Air Flow in a Generally Straight Line Path with the Laser Source and the Power Source

Claim 15 is patentable over Martin under Section 102 because this reference fails to disclose or suggest a cooling fan at one end of the power source that generates an air flow directed in a generally straight line path with the laser source and the power source. In contrast with the laser of claim 15, Martin's fan 32 is positioned below the heat sink member 28 and apart from both the laser medium 18 and the pump source 34. Further, as discussed previously, the air flow in Martin accordingly flows simultaneously on both the laser medium section and the pump source section of the laser device 10. Martin accordingly fails to disclose or suggest a cooling fan at one end of the power source that generates an airflow directed in a generally straight line path with the laser source and the power source. Because Martin fails to disclose or suggest all the claimed features, the Section 102 rejection of claim 15 should be withdrawn.

Claim 15 is further patentable over Martin under Section 103 because there is no suggestion or motivation to modify Martin come up with the claimed combination of features. As discussed above with respect to claim 1, such modifications are not suitable in light of the teachings of Martin.

Claims 16-21 are patentable under Sections 102 and 103 over Martin as depending from allowable base claim 15, and also because of the additional features of these dependent claims.

B. Response to Section 103 Rejection of Claims 6, 7-14, 22, and 23 (Martin and Ostler)

Claims 6, 7-14, 22, and 23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Martin in view of Ostler. Claims 6 and 22 depend from allowable

base claims 1 and 15, respectively. As discussed above, Martin fails to disclose or suggest all the features of claims 1 and 15. Ostler is relied on in the Office Action for disclosing a device with a shroud covering. (Office Action, p. 5.) Ostler, however, fails to cure the above-noted deficiencies of Martin, and therefore fails to support a Section 103 rejection of claims 1 and 15. Accordingly, dependent claims 6 and 22 are allowable over the combination of Martin and Ostler for at least the reason that these references, either alone or in combination, fail to disclose or suggest the features of claims 1 and 15, and the additional features of claims 6 and 22. Therefore, the Section 103 rejection of claims 6 and 22 should be withdrawn.

1. Independent Claim 7 is Directed to a Laser Including, *Inter Alia*, a Laser Source and a Power Source Aligned Along a Longitudinal Axis and a Cooling Fan Located in a Generally Straight Line Path with the Laser Source and Power Source

Independent claim 7 is directed to a laser having a laser source with a first end, a second end spaced apart from the first end along a longitudinal axis, a laser resonator, a laser media, and electrodes for exciting the laser media. The laser further includes a power source substantially adjacent to one of the first or second ends of the laser source such that the power source and the laser source are aligned along the longitudinal axis. The power source is adapted for causing the laser source to generate a laser beam from the other one of the first or second ends. The laser of claim 7 further includes a cooling fan positioned substantially adjacent to the power source and located in a generally straight line path with the laser source and the power source along the longitudinal axis.

2. Claim 7 is Patentable over Martin and Ostler for at Least the Reason that These References Fail to Disclose or Suggest a Cooling Fan Positioned Adjacent to the Power Source and Located in a Generally Straight Line Path with the Laser Source and the Power Source Along a Longitudinal Axis

Claim 7 is patentable over Martin and Ostler under Section 103 because these references, either alone or in combination, fail to disclose or suggest a cooling fan positioned adjacent to the power source and located in a generally straight line path with the laser source and the power source along the longitudinal axis. In contrast to the claimed arrangement, the fan 32 disclosed in Martin is offset from the longitudinal

axis of the device 10 and generally perpendicular to the laser medium 18 and the pump source 34. Nowhere does Martin disclose or suggest that the fan 32, the laser medium 18, and the pump source 34 can be arranged in a straight line path along the longitudinal axis. Ostler is relied on in the Office Action for disclosing a "device with an electrode." (Office Action, p. 7.) Ostler, however, fails to cure the above-noted deficiencies of Martin, and therefore fails to support a Section 103 rejection of claim 7. Because the applied references Martin and Ostler, either alone or in combination, fail to disclose or suggest all the claimed features, the Section 103 rejection of claim 7 should be withdrawn.

Claims 8-14 are patentable over Martin and Ostler under Section 103 as depending from allowable base claim 7, and also because of the additional features of these dependent claims.

Independent claim 23 includes several features generally similar to those of claim 7. Accordingly, claim 23 is patentable over Martin and Ostler under Section 103 for at least the reasons discussed above with reference to claim 7, and for the additional features of this independent claim. Therefore, the Section 103 rejection of claim 23 should be withdrawn.

Conclusion

In view of the foregoing, the pending claims comply with 35 U.S.C. § 112 and are patentable over the cited art. The applicants accordingly request reconsideration of the application and a mailing of a Notice of Allowance. If the Examiner has any questions or believes a teleconference would expedite prosecution of the application, the Examiner is encouraged to contact Aaron Poledna at (206) 359-3982.

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